



# *Common Market for Eastern and Southern Africa*



## **EDICT OF GOVERNMENT**



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COMESA 229-2-5 (2006) (English/French): Plugs and socket-outlets for household and similar purposes - Part 2: Particular requirements for adaptors



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COMESA HARMONISED  
STANDARD

COMESA/DHS  
229-2-5: 2005

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**Plugs and socket-outlets for household and  
similar purposes - Part 2: Particular  
requirements for adaptors**

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REFERENCE: DHS 229-2-5: 2005

## Foreword

The Common Market for Eastern and Southern Africa (COMESA) was established in 1994 as a regional economic grouping consisting of 20 member states after signing the co-operation Treaty. In Chapter 15 of the COMESA Treaty, Member States agreed to co-operate on matters of standardisation and Quality assurance with the aim of facilitating the faster movement of goods and services within the region so as to enhance expansion of intra-COMESA trade and industrial expansion.

Co-operation in standardisation is expected to result into having uniformly harmonised standards. Harmonisation of standards within the region is expected to reduce Technical Barriers to Trade that are normally encountered when goods and services are exchanged between COMESA Member States due to differences in technical requirements. Harmonized COMESA Standards are also expected to result into benefits such as greater industrial productivity and competitiveness, increased agricultural production and food security, a more rational exploitation of natural resources among others.

COMESA Standards are developed by the COMESA experts on standards representing the National Standards Bodies and other stakeholders within the region in accordance with international procedures and practices. Standards are approved by circulating Final Draft Harmonized Standards (FDHS) to all member states for a one Month vote. The assumption is that all contentious issues would have been resolved during the previous stages or that an international or regional standard being adopted has been subjected through a development process consistent with accepted international practice.

COMESA Standards are subject to review, to keep pace with technological advances. Users of the COMESA Harmonized Standards are therefore expected to ensure that they always have the latest version of the standards they are implementing.

This COMESA standard is technically identical to the International standard *IEC 60884-2-5:1995*.

A COMESA Harmonized Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application.

**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC  
884-2-5**

Première édition  
First edition  
1995-07

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**Prises de courant pour usages domestiques  
et analogues –**

**Partie 2:**  
Règles particulières pour les adaptateurs

**Plugs and socket-outlets for household  
and similar purposes –**

**Part 2:**  
Particular requirements for adaptors



Numéro de référence  
Reference number  
CEI/IEC 884-2-5: 1995

## Numéros des publications

Depuis le 1<sup>er</sup> janvier 1997, les publications de la CEI sont numérotées à partir de 60000.

## Publications consolidées

Les versions consolidées de certaines publications de la CEI incorporant les amendements sont disponibles. Par exemple, les numéros d'édition 1.0, 1.1 et 1.2 indiquent respectivement la publication de base, la publication de base incorporant l'amendement 1, et la publication de base incorporant les amendements 1 et 2.

## Validité de la présente publication

Le contenu technique des publications de la CEI est constamment revu par la CEI afin qu'il reflète l'état actuel de la technique.

Des renseignements relatifs à la date de reconfirmation de la publication sont disponibles dans le Catalogue de la CEI.

Les renseignements relatifs à des questions à l'étude et des travaux en cours entrepris par le comité technique qui a établi cette publication, ainsi que la liste des publications établies, se trouvent dans les documents ci-dessous:

- «Site web» de la CEI\*
- **Catalogue des publications de la CEI**  
Publié annuellement et mis à jour régulièrement (Catalogue en ligne)\*
- **Bulletin de la CEI**  
Disponible à la fois au «site web» de la CEI\* et comme périodique imprimé

## Terminologie, symboles graphiques et littéraux

En ce qui concerne la terminologie générale, le lecteur se reportera à la CEI 60050: *Vocabulaire Electrotechnique International* (VEI).

Pour les symboles graphiques, les symboles littéraux et les signes d'usage général approuvés par la CEI, le lecteur consultera la CEI 60027: *Symboles littéraux à utiliser en électrotechnique*, la CEI 60417: *Symboles graphiques utilisables sur le matériel. Index, relevé et compilation des feuilles individuelles*, et la CEI 60617: *Symboles graphiques pour schémas*.

\* Voir adresse «site web» sur la page de titre.

## Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

## Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

## Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site\***
- **Catalogue of IEC publications**  
Published yearly with regular updates (On-line catalogue)\*
- **IEC Bulletin**  
Available both at the IEC web site\* and as a printed periodical

## Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

\* See web site address on title page.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD  
AND SIMILAR PURPOSES –

## Part 2: Particular requirements for adaptors

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

International Standard IEC 884-2-5 has been prepared by sub-committee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

The text of this standard is based on the following documents:

DIS	Report on voting
23B/425/DIS	23B/454/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This part 2 shall be used in conjunction with IEC 884-1 (second edition, 1994): General requirements. It lists changes necessary to convert that publication into the IEC standard: Particular requirements for adaptors.

Where clauses of part 1 are declared applicable, they apply only where they contain requirements which are relevant to adaptors.

In this standard the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.



## PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD AND SIMILAR PURPOSES –

### Part 2: Particular requirements for adaptors

#### 1 Scope

This clause of part 1 is applicable except as follows:

*Add after the tenth line:*

This standard applies to shuttered and non-shuttered, fused and non-fused adaptors for a.c. only.

Fuses of fused adaptors are not intended to protect appliance or parts of them against overload.

*Add*

NOTE – The use of non-shuttered adaptors is not allowed in the following countries: IT, NO.

#### 2 Normative references

This clause of part 1 is applicable except as follows:

*Add to the list of normative references:*

IEC 269, *Low-voltage fuses*

IEC 669-2-1: 1994, *Switches for household and similar fixed electrical installations – Part 2: Particular requirements – Section 1: Electronic switches*

#### 3 Definitions

This clause of part 1 is applicable except as follows:

*Replace note 3 by:*

3 The term "accessory" is used as a general term covering plugs, socket-outlets and adaptors; the term "portable accessory" covers plugs, portable socket-outlets and adaptors.

*Add the following note 5:*

5 The term "adaptor" is used as a general term covering all types of adaptors except where reference is made to one particular type.

3.25 *Replace by:*

**rated voltage:** Voltage assigned to the accessory by the manufacturer, which will be that specified in the standard sheet, if any.

3.26 *Replace by:*

**rated current:** Current assigned to the accessory by the manufacturer, which will be that specified in the standard sheet, if any.

*Add the following definitions:*

**3.101 adaptor:** Portable accessory constructed as an integral unit incorporating both a plug portion and one or more socket-outlet portions.

**3.102 fused adaptor:** Adaptor incorporating a replaceable fuse link in one or more current-carrying poles.

**3.103 polarized fused adaptor:** Fused adaptor constructed so that, when inserted in a socket-outlet installed in a polarized wiring installation, the correct relationship between the neutral and the line pole or poles is maintained.

**3.104 multiway adaptor:** Adaptor which allows the connection simultaneously of more than one plug to all socket-outlet portions of the adaptor.

**3.105 conversion adaptor:** Adaptor which allows the connection of one or more types of plug to a socket-outlet not designed to accept such plugs.

**3.106 Intermediate adaptor:** Adaptor which allows the connection of one or more types of plug to a socket-outlet via a control device such as a dimmer, clock switch, photo-electric switch, etc., which may be either integral with the intermediate adaptor or connected to it by a flexible cable, and in which case may be either rewirable or non-rewirable.

NOTE – A control device itself will normally be covered by another standard, for example for an electronic switch, IEC 669-2-1.

**3.107 rewirable intermediate adaptor:** Adaptor so constructed that the flexible cable, if any, can be replaced.

**3.108 non-rewirable intermediate adaptor:** Adaptor so constructed that it forms a complete unit with the flexible cable, if any, after connection and assembly by the manufacturer of the adaptor (see also 14.1).

**3.109 external cable:** Cable a part of which is external to the intermediate adaptor. Such cable may either be a supply cable or a connecting cable between separate parts of a device.

#### 4 General requirements

This clause of part 1 is applicable.

#### 5 General notes on tests

This clause of part 1 is applicable.

#### 6 Ratings

This clause of part 1 is applicable except as follows:

*Add the following subclauses:*

6.101 The rated voltage of adaptors shall not be lower than that of the relevant socket-outlet which can accept the adaptor.

6.102 The rated current of an adaptor shall be:

- the rated current of the plug portion of the adaptor;
- the sum of the rated currents of the plugs which can be inserted into the adaptor,

whichever is the lower.

6.103 Fused adaptors shall have a minimum rating equivalent to the rating of the fuse fitted in accordance with the marking.

6.104 The rated current of each of the socket-outlet portions of the adaptors shall be equal to or greater than the maximum value of the rated current of any plug which can be inserted into it.

6.105 The rated current of intermediate adaptors with integral control devices, shall be equal to the rated current of the control device, or to the rated current of the socket-outlet into which it is intended to fit, whichever is the lower.

*Compliance with the requirements of 6.101 to 6.104 is checked by inspection.*

#### 7 Classification

This clause of part 1 is applicable.

#### 8 Marking

This clause of part 1 is applicable except as follows:

##### 8.1

*Replace the first dashed text by:*

- rated current in amperes and/or power in watts

*Add at the end of the subclause:*

The marking for rated current and/or power shall be completed by the word MAX.

#### NOTES

3 These markings may be shown as in the examples:

MAX 2 000 W – MAX 10 A, or

2 000 W – 10 A MAX, or

MAX 10 A, or

10 A MAX.

4 The power should be calculated using the nominal supply voltage.


The maximum admissible power marking shall be easily discernible until the last plug is connected, and, in multiway adaptors, this marking shall not be placed on the socket-outlet engagement surface.

Fused adaptors shall be marked to indicate the presence of a fuse within the adaptor: this marking may be in the form of a symbol.

Rewireable fused intermediate adaptors shall be marked to indicate the rated current of the fuse within the intermediate adaptor: this may be on the intermediate adaptor or on an attached label.

Non-rewirable fused adaptors shall be permanently marked with the rated current of the fuse appropriate to the attached flexible cable and to associated appliances as designated by the manufacturer.

#### 8.2 Add:

Fuse .....  (see 417 – IEC-5016)

### 9 Checking of dimensions

This clause of part 1 is applicable.

### 10 Protection against electric shock

This clause of part 1 is applicable except as follows:

#### 10.1 Replace the second paragraph by:

Live parts of plug portions of adaptors shall not be accessible when the plug portion of an adaptor is in partial or complete engagement with a socket-outlet of the same system.

*Replace the sixth paragraph by:*

*For adaptors, the test finger is applied in every possible position when the adaptor is in partial or complete engagement with a socket-outlet of a same system.*

*Add the following subclause:*

10.101 It shall not be possible to remove or replace a fuse-link in a fused adaptor unless the adaptor is completely withdrawn from the socket-outlet.

*Compliance is checked by inspection.*

10.3 *Replace the first paragraph by:*

It shall not be possible to make connection between a pin of an associated plug and a live socket contact of an adaptor or between a pin of an adaptor and a live socket contact of a socket-outlet, of the same system, whilst any other current carrying pin is accessible.

10.4 *Replace the first paragraph by:*

External parts of adaptors, with the exception of assembly screws and the like, current-carrying and earthing pins, earthing straps and metal rings around pins, shall be of insulating material.

10.5 *Replace the first paragraph by:*

Shuttered socket-outlet portions of adaptors shall, in addition be so constructed that live parts are not accessible without a plug in engagement, with the gauge shown in figure 4.

## **11 Provision for earthing**

This clause of part 1 is applicable.

## **12 Terminals**

This clause of part 1 is applicable except as follows:

12.1.1 *Replace the second paragraph by:*

Rewireable intermediate adaptors shall be provided with screw-type terminals.

## **13 Construction of fixed socket-outlets**

This clause of part 1 is not applicable.

## **14 Construction of plugs and portable socket-outlets**

This clause of part 1 is applicable except as follows:

*Replace the title by:*

### **Construction of portable accessories**

#### **14.1 *Replace by:***

Non-rewireable intermediate adaptors shall be such that:

- the flexible cable cannot be separated from the adaptor without making it permanently useless, and
- the adaptor cannot be opened by hand or by using a general purpose tool, for example a screwdriver used as such.

*Compliance is checked by inspection.*

NOTE - An adaptor is considered permanently useless, when for re-assembling the adaptor, parts or materials other than the original are to be used.

#### **14.2 *Replace the first paragraph by:***

Pins of adaptors shall have adequate mechanical strength.

#### **14.3 *Replace the first seven lines by:***

Pins of adaptors shall be:

- locked against rotation, except where rotation is not likely to impair safety or function;
- not removable without dismantling the adaptor;
- adequately fixed in the body of the adaptor when the adaptor is wired and assembled as for normal use.

It shall not be possible to replace the earthing or neutral pins or contacts in an incorrect position when pins of adaptors are properly assembled and secured in accordance with the manufacturers instructions.

#### **14.4 *Replace the first paragraph by:***

Earthing contacts and neutral contacts of adaptors shall, when in use, be locked against rotation and removable only with the aid of a tool, after dismantling the adaptor.

#### **14.11 *Replace the first line by:***

For rewireable intermediate adaptors:

**14.13 Replace by:**

If covers of adaptors are provided with bushes for entry holes for the pins, these bushes shall not become detached inadvertently from the inside when the cover is removed.

*Compliance is checked by inspection.*

**14.15 Replace the first paragraph by:**

The engagement face of adaptors shall have no projections other than the pins, when the adaptor is wired and assembled as for normal use.

**14.16 Replace the first paragraph by:**

Adaptors shall be so designed that full engagement of associated plugs is not prevented by any projection from their engagement face.

**14.23 Replace the first note by:**

NOTE – Examples of equipment with plugs which are an integral part are adaptors, razors, lamps with rechargeable batteries and plug-in transformers.

**14.23.2 Add after the first paragraph:**

*For adaptors, the adaptor is first fitted with a relevant plug complete with 1 m of 0,75 mm<sup>2</sup> circular flexible cable to 227 IEC 53, to each socket-outlet portion of the adaptor.*

NOTE 1 – The number of conductors should be the same as that of the poles of the relevant plug.

*Add at the end of this subclause:*

*For adaptors, during the test, care shall be taken that the flexible cable(s) hang freely.*

**NOTES**

2 Higher torque values are required in the following countries: SE – A torque of 0,5 Nm is required for adaptors with socket-outlet parties according to IEC 83 Standard Sheet C2a.

3 A gauge to replace the relevant plug and flexible cable is under consideration.

*Add the following subclause:*

**14.23.101** Adaptors shall withstand the lateral strain imposed by equipment likely to be introduced into them.

*Compliance is checked by the following test using the device shown in figure 6.*

*The specimen is mounted on a vertical surface with, initially, the plane through the live socket contacts horizontal. The face to be tested shall be in a vertical position and parallel to the vertical mounting surface.*

*The device is then fully-engaged, and a force of 5 N is applied in a vertically downward direction.*

*The device is removed after 1 min and the adaptor is turned through 90° on the mounting surface. The test is made four times, the adaptor being turned 90° after each engagement. During the test the device shall not come out. The test is repeated for each socket-outlet portion of the adaptor.*

*After the test, the adaptor shall show no damage within the meaning of this standard, in particular it shall comply with the requirements of clause 22.*

#### **14.24 Replace by:**

Adaptors shall be shaped in such a way and made of such a material that they can be easily withdrawn by hand from the relevant socket-outlet.

In addition, the gripping surfaces shall be so designed that the adaptor can be withdrawn without having to pull on the flexible cable, if any.

*Compliance is checked by a test which is under consideration.*

14.25 This subclause of part 1 is not applicable.

*Add the following subclauses:*

14.101 The plug portion of adaptors shall be provided with earthing pins or contacts if any one of the socket-outlet portions is provided with an earthing pin or contact.

NOTE – An adaptor, allowing the connection between a socket-outlet with earthing contact and a plug without earthing contact for class zero equipment is not permitted.

*Compliance is checked by inspection and by the test of 11.5.*

14.102 Adaptors for use in polarized socket-outlets shall be so designed that the internal connection shall ensure that plug pins, socket-contacts and terminals, if any, maintain the same polarity at the input and output portions of the adaptor.

*Compliance is checked by inspection and if necessary by an electrical continuity test.*

14.103 It is recommended that multiway adaptors be so designed and constructed that it is not possible to plug two or more multiway adaptors into each other, when directly engaged into a fixed socket-outlet in a flush mounting box.

*Compliance is checked by inspection.*

NOTE – The recommendation is only applicable for adaptors from the same manufacturer unless the standard sheets of a specific system may provide details to make it not possible to plug multiway adaptors into each other.



14.104 If the insulation of an external flexible cable is not equivalent at least to that of cables according to the relevant IEC standard, and it does not comply with the electric strength test carried out between the cable and a metallic sheet wrapped around the insulation according to the specifications of 17.2, the cable shall be considered as a bare conductor.

14.105 Provision shall be made within the body of a fused adaptor for suitable fuse-link complying with IEC 269 as far as it reasonably applies (see 14.22).

The fuse-link shall be mounted between contacts fitted between an adaptor plug pin and the corresponding socket contact(s).

In polarized systems the fuse shall be mounted between the line plug pin and the corresponding line socket contact(s).

Fuse links shall not be fitted in the earthing circuit.

The design of the adaptor shall be such that the fuse-link cannot be left in inadequate contact when the adaptor is assembled.

*Compliance is checked by inspection.*

## **15 Interlocked socket-outlet**

This clause of part 1 is applicable except as follows:

*Replace the title by:*

### **Interlocked socket-outlet portions of adaptors**

*Replace the first paragraph by:*

Socket-outlet portions of adaptors interlocked with a switch shall be so constructed that a plug cannot be inserted or completely withdrawn from the adaptor while the socket-contacts are live, and the socket-contacts of the adaptor cannot be made live until a plug is almost completely in engagement.

## **16 Resistance to ageing, to harmful ingress of water and to humidity**

This clause of part 1 is applicable.

## 17 Insulation resistance and electric strength

This clause of part 1 is applicable except as follows:

### 17.1.1 *Replace by:*

*For adaptors the insulation resistance is measured consecutively:*

- a) between all poles connected together and a metal foil in contact with the outer surface of accessible external parts of insulating material and including external assembly screws;*
- b) between each pole in turn, and all others connected together;*
- c) between any metal part of any cable anchorage, including clamping screws, and the earthing pin or terminal, if any;*
- d) for intermediate adaptors, between any metal part of the cable anchorage and a metal rod of the maximum diameter of the flexible cable inserted in its place (see table 17).*

#### NOTES

1 Where terminals are not directly accessible, for example, in non-rewirable adaptors, these tests should be made using accessible parts such as the pins.

2 While the metal foil is wrapped round the outer surface or placed in contact with the inner surface of parts of insulating material, it is pressed against holes or grooves without any appreciable force by means of a straight unjointed test finger having the same dimensions as the standard test finger shown in figure 2.

17.1.2 This subclause is not applicable.

## 18 Operation of earthing contacts

This clause of part 1 is applicable.

## 19 Temperature rise

This clause of part 1 is applicable except as follows:

*Replace the tenth and eleventh paragraphs by:*

*Adaptors are tested using a fixed socket-outlet complying with the standard and having as near to average characteristics as can be selected, but with minimum size of earthing pin, if any.*

*The adaptor is inserted into a socket-outlet and an alternating current as specified in table 101, is passed for 1 h.*

*Add after the thirteenth paragraph:*

*For adaptors a test current shall be applied:*

- through each separate socket-outlet portion in turn, the test current being appropriate to the rating of the relevant socket-outlet portion (see table 20);*
- through all socket-outlet portions simultaneously, the test current being appropriate to the rating of the adaptor and divided between the socket-outlet portions in proportion to their ratings.*

## **20 Breaking capacity**

This clause of part 1 is applicable except as follows:

*Replace the second paragraph by:*

*Compliance is checked by testing socket-outlet portions of adaptors, and plug portions of adaptors with pins which are not solid, by means of an appropriate test apparatus, an example of which is shown in figure 12.*

*Replace the fourth paragraph by:*

*Socket-outlet portions of adaptors are tested using a test plug with brass pins having, if applicable, insulating sleeves, and having the maximum specified dimensions, with a tolerance of  $-0,06$  mm and spaced at the nominal distance, with a tolerance of  $+0,05$  mm. As far as the extremities of the sleeves are concerned, it is sufficient that their dimensions are within the tolerances given in the relevant standard sheet.*

*Replace the sixth paragraph by:*

*Plug portions of adaptors are tested using fixed socket-outlets complying with this standard and having as near to average characteristics as can be selected.*

*Replace the eighth paragraph by:*

*The plug portion of the adaptor is inserted and withdrawn from the socket-outlet 50 times (100 strokes) at a rate of:*

- 30 strokes per minute for adaptors having a rated current up to and including 16 A and a rated voltage up to and including 250 V;*
- 15 strokes for all other adaptors.*

*Add before the second paragraph from the end of clause 20.*

*Each socket-outlet portion and plug portion of an adaptor shall be tested separately.*

## 21 Normal operation

This clause of part 1 is applicable except as follows:

*Replace the second paragraph by:*

*Compliance is checked by testing the socket-outlet portions of adaptors and the plug portion of adaptors with resilient earthing socket-contacts or with pins which are not solid, by means of an appropriate test apparatus, an example of which is shown in figure 12.*

*Replace the text of note 6 by:*

6 Adaptors are tested using a fixed socket-outlet complying with this standard and having as near to average characteristics as can be selected.

*Replace the sixth paragraph by:*

*Each socket-outlet portion and plug portion of an adaptor shall be tested separately.*

*The plug is inserted into and withdrawn from the socket-outlet portion of an adaptor 5 000 times (10 000 strokes), and the plug portion of an adaptor is inserted into and withdrawn from the socket-outlet 1 000 times (2 000 strokes), at a rate of:*

- 30 strokes per minute for adaptors having a rated current up to and including 16 A and a rated voltage up to and including 250 V;*
- 15 strokes per minute for all other adaptors.*

## 22 Force necessary to withdraw the plug

This clause of part 1 is applicable except as follows:

*Replace the first paragraph by:*

The construction of adaptors shall allow the easy insertion and withdrawal of the plug, and prevent the plug from working out of the socket-outlet portion of the adaptor in normal use.

22.1 *Replace the first paragraph by:*

*The adaptor is fixed to a mounting plate A of an apparatus as shown in figure 13, so that the axis of the socket-contacts are vertical and the entry holes for the pins of the plug face downwards.*

## 23 Flexible cables and their connection

This clause of part 1 is applicable except as follows:

23.1 *Replace the first paragraph by:*

Intermediate adaptors intended for use with a flexible cable shall be provided with a cord anchorage such that the conductors are relieved from strain, including twisting, where they are connected to the terminal or terminations, and that their covering is protected from abrasion.

23.3 *Replace the first paragraph and table 20 by:*

Non-rewirable intermediate adaptors intended for use with a flexible cable shall be provided with a flexible cable complying with IEC 227 or IEC 245 for external conductors able to supply a current according to the rated characteristics of appliances or an external flexible cable intended for control. The cross-sectional areas of the conductors in relation to the rating of the intermediate adaptors are given in the relevant columns of table 101.

NOTE - Table 101 also specifies the test currents for the test temperature rise and normal operation.

External flexible cables intended for control shall comply with the requirements of 14.104.

**Table 101**

Rating of accessory	Adaptors		Non-rewirable intermediate adaptors with flexible cable connection		
	Test current A		Cross-sectional area mm <sup>2</sup>	Test current A	
	Clause 19	Clause 21		Clause 19	Clause 21
2,5 A 130/250 V	4	2,5	0,75 1	4 4	2,5 2,5
6 A 130/250 V	8,4	6	0,75 1	9 9	6 6
10 A 130/250 V	14	10	0,75 1	10 12	10 10
16 A 130/250 V	20	16	0,75 1 1,5	10 12 16	10 12 16
16 A 440 V	20	16	1,5 2,5	16 22	16 22
32 A 130/250/440 V	40	32	2,5 4 4	25 31 42	25 31 32
NOTE - The test current for accessories having other rated currents are determined by interpolation between the next lower and the next higher standard ratings.					

23.4 *Replace the first paragraph by:*

Non-rewirable intermediate adaptors with a flexible cable shall be so designed that the flexible cable is protected against excessive bending where it enters the adaptor.

## 24 Mechanical strength

This clause of part 1 is applicable except as follows:

*Replace the first and second paragraphs by:*

Adaptors shall have adequate mechanical strength to withstand the stresses imposed during use.

*Compliance is checked by the appropriate tests as indicated below:*

- *for adaptors:*
  - *with enclosures, covers or bodies other than elastomeric or thermoplastic material ..... 24.2 and 24.10;*
  - *with enclosures, covers or bodies of elastomeric or thermoplastic material ..... 24.2, 24.4, 24.5 and 24.10;*
- *for pins provided with insulating sleeves in plug portions of adaptors ..... 24.7;*
- *for socket-outlet portions of adaptors provided with shutters ..... 24.8.*

### 24.2 Add at the end of the fifth paragraph:

*For adaptors:*

- *50 if the mass of the specimen does not exceed 50 g;*
- *25 if the mass of the specimen exceeds 50 g.*

*Replace the last dashed text by:*

- *the pins shall not turn when a torque of 0,4 Nm is applied, first in one direction for 1 min and then in the opposite direction for 1 min. This test is not carried out on adaptors where the rotation of the pins does not impair safety or function.*

*Add at the end:*

NOTE 4 – The breakage of parts of equipment incorporated in the intermediate adaptors is ignored provided the requirements of clause 10 are met and the functioning of the equipment does not give rise to a dangerous situation.

### 24.7 Replace the first paragraph by:

*Pins of plug portions of adaptors with insulating sleeves are subjected to the following test by means of an apparatus as shown in figure 23.*

### 24.8 Replace the first paragraph by:

*Shuttered socket-outlet portions of adaptors shall have a shutter so designed that it withstands the mechanical force which may be expected in normal use, for example when a pin of a plug is inadvertently forced against the shutter of a socket-outlet entry hole.*

#### 24.10 Replace the first paragraph by:

*The adaptor is placed on a rigid steel plate provided with holes suitable for the pins of the plug portion of an adaptor as shown as an example in figure 25.*

#### 25 Resistance to heat

This clause of part 1 is applicable.

#### 26 Screws, current-carrying parts and connections

This clause of part 1 is applicable.

#### 27 Creepage distances, clearances and distances through sealing compound

This clause of part 1 is applicable except as follows:

**Table 23**

*Replace the fifth dashed text of item 2, by:*

- *external assembly screws, other than screws which are on the engagement face of the adaptor and are isolated from earthing circuit; ..... 3 mm*

*Replace item 3 by:*

*between pins if an adaptor and metal parts connected to them when fully-engaged, and a socket-outlet having accessible unearthed metal parts <sup>2)</sup>, made according to the most unfavourable construction <sup>3)</sup>; ..... 6 mm <sup>4)</sup>*

*Replace item 4 by:*

*between the accessible unearthed parts <sup>2)</sup> of a socket-outlet and a fully-engaged adaptor having pins and metal parts connected to them made according to the most unfavourable construction <sup>3)</sup>; ..... 6 mm <sup>4)</sup>*

*Replace Item 5 by:*

*between the live parts of a socket-outlet portion of an adaptor (without a plug) and its accessible unearthed metal parts <sup>2)</sup>; ..... 6 mm <sup>4)</sup>*

*Replace the fifth dashed text of item 7 by:*

- *external assembly screws, other than screws which are on the engagement face of the adaptor and are isolated from the earthing circuit; ..... 3 mm*

#### 27.1 Replace the fifth paragraph by:

*Adaptors are checked when in engagement with a socket-outlet and with and without corresponding plugs fitted.*

## **28 Resistance of insulating material to abnormal heat, to fire and to tracking**

This clause of part 1 is applicable except as follows:

### **28.1** *Replace the second paragraph by:*

*Compliance is checked by the test as per 28.1.1 and, in addition, for pins of adaptors provided with insulating sleeves, by the test of 28.1.2.*

### **28.1.2** *Replace the first paragraph by:*

*The specimen of an adaptor with pins provided with insulating sleeves is tested by means of the test apparatus as shown in figure 26.*

## **29 Resistance to rusting**

This clause of part 1 is applicable.

## **30 Additional tests on pins provided with insulating sleeves**

This clause of part 1 is applicable.

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**ICS 29.120.30**

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Typeset and printed by the IEC Central Office  
GENEVA, SWITZERLAND